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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|--------------------------------|------------------------|
| 10/779,791 | 02/18/2004 | Takaaki Endo | 00862.023466 | 9849 |
| 5514 7590 12/31/2007 FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112 | | | EXAMINER AGGARWAL, YOGESH K | |
| | | | ART UNIT 2622 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------|-----------------------------|--|
| Office Action Summary | Application No. 10/779,791 | Applicant(s) ENDO ET AL. | |
| | Examiner Yogesh K. Aggarwal | Art Unit 2622 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-12 and 14 is/are pending in the application.
- 4a) Of the above claim(s) 2, 8, 10, 12 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-7 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

1. Applicant's arguments with respect to claims 1, 3-7 and 11 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leberl et al. (US Patent # 6,122,078) in view of Foote et al. (US Patent # 7,015,954).

[Claim 1]

Leberl teaches an image processing method comprising:

setting a common coordinate system, which can be transformed from individual coordinate systems of a plurality of image sensing devices (e.g. X,Y,Z as shown in equations 2 and 3, col. 17 line 20 - col. 18 line 36, col. 22 line 48-col. 23 line 3, figure 16, also see col. 15 line 57-col. 16 line 7, figures 1-3) ;

estimating postures of at least one of the plurality of image sensing devices (e.g. parameter estimation circuit 343 as shown in figure 3, col. 17 lines 20-37);

calculating an estimated posture of the common coordinate system using at least one of the estimated posture of the plurality of image sensing devices (See equations 2 and 3, col. 17 line 20 - col. 18 line 36);

calculating a first correction transform for reducing a shakiness of the common coordinate system using the estimated posture of the common coordinate system (col. 23 line 28-col. 24 line 26);

calculating second correction transform for reducing a shakiness of each of the plurality of image sensing devices using the first correction transform (col. 26 line 66-col. 27 line 8, col. 20 line 12-col. 22 line 47, figures 16 and 17);

transforming a sensed image which is sensed by each of the plurality of image sensing devices based on the second correction transforms (col. 25 line 31- col. 26 line 6).

Leberl fails to teach an image processing method for generating a panoramic image from a plurality of images obtained by a respective plurality of image sensing devices, said method comprising: composing a panoramic image by joining a plurality of transformed sensed images. However Foote et al. teaches in fig. 12, the steps for compositing each video frame. In this flow, 3 cameras (1200-1, 1200-2, and 1200-3) each provide one image to be combined as part of a composite panoramic image. At steps 1210-1, 1210-2, and 1210-3, each of the images are processed by selecting patches (quadrilateral regions) and warped into a space for fitting into a common coordinate system. At step 1220, the warped quadrilateral regions (patches) are cross-faded or other technique for eliminating edges and seams, and placed in tiles (the common coordinate system, for example). Upon completion, the composite panoramic image is available for display, selection, storage or other processes (step 1230). Note that this procedure, including all data transfer and warping, using currently available processing speeds, can be performed at video rates of 10-30 frames per second (col. 11 lines 52-67, figure 12).

Therefore taking the combined teachings of Leberl and Foote, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have an image processing method for generating a panoramic image from a plurality of images obtained by a respective plurality of image sensing devices, said method comprising: composing a panoramic image by joining a plurality of transformed sensed image to be used in the system of Leberl as taught in Foote in order to have a composite panoramic image is available for display, selection, storage or other processes using currently available processing speeds, can be performed at video rates of 10-30 frames per second thereby having a real time generation and correction of images.

[Claims 3, 4 and 6]

Leberl et al. teaches wherein the correction transform for reducing a shakiness of each of the common coordinate system or the plurality of image sensing devices is a transform for correcting yaw, roll, pitch angles and position (col. 23 line 43-col. 24 line 2, roll, tip, yaw and $\{\alpha, \phi, \omega\}$ represent position).

[Claim 5]

Leberl teaches wherein the step of estimating the orientation of at least one of the plurality of image sensing devices further estimates a position of at least one of the plurality of image sensing devices, and said step of calculating the estimated orientation of the common coordinate system further estimates an estimated position of the common coordinate system. (e.g. parameter estimation circuit 343 as shown in figure 3, col. 17 lines 20-37, See equations 2 and 3, col. 17 line 20 - col. 18 line 36, See equations 2 and 3, col. 17 line 20 - col. 18 line 36 for estimating an estimated position of the common coordinate system).

[Claims 7 and 11]

These are apparatus and computer storage claims corresponding to method claim 1. Therefore they have been analyzed and rejected based upon claim 1.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K. Aggarwal whose telephone number is (571) 272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.

5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on (571)-272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

Application/Control Number:
10/779,791
Art Unit: 2622

Page 6

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

YKA
December 25, 2007

A handwritten signature in black ink, appearing to read 'Lin Ye', with a stylized, flowing script.

LIN YE
SUPERVISORY PATENT EXAMINER